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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,433	01/09/2002	Seiji Yoshimura	020003	5424

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EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/040,433

Applicant(s)

YOSHIMURA ET AL.

Examiner

Dah-Wei D. Yuan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.*
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-11 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: |

LITHIUM SECONDARY BATTERY

Examiner: Yuan

S.N. 10/040,433

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September 22, 2003

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 7-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakamoto et al. (US 6,447,957) as evidenced by Chemical Composition of Aluminum Alloys (www.egyptalum.com).

With respect to claims 7,10,11, Sakamoto et al. teach a lithium secondary battery comprising a positive electrode, a negative electrode, and a non-aqueous electrolyte. The positive electrode further comprises a positive electrode current collector having through holes of different shapes and sizes. The positive electrode current collector can be formed of aluminum or an aluminum alloy, including an aluminum-manganese based alloy (JIS nominal No. 3000 system). See

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Abstract; Column 5, Lines 36-65. The compositions of the 3003 Al-Mn alloy contains 0.05-0.2 wt.% Cu and 1-1.5% wt.% Mn as evidenced in the website of www.egyptalum.com.

With respect to claims 8,9, Sakamoto et al. teach the positive electrode current collector can be a flat metal lath as shown in Figures 2 and 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,2,4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. (US 6,447,957) as evidenced by Dockus et al. (US 2003/0155409 A1).

With respect to claims 1,4,5, Sakamoto et al. teach a lithium secondary battery comprising a positive electrode, a negative electrode, and a non-aqueous electrolyte. The positive electrode further comprises a positive electrode current collector, which can be an aluminum foil, an aluminum alloy foil, a stainless steel foil, a nickel foil, and the like. It may also be a clad foil of a single type of metal or an alloy or the same type of metals or an alloy. See Column 5, Lines 46-65. According to the Dockus et al., the stainless steels can be categorized as follows: stainless steel grades with 0.01 to 0.35% by weight of carbon and 11 to 27% by weight of Cr, as defined by the international standard steel numbers, like ferritic grades,

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for example ASTM 409, 410S, 430; austenitic grades, for example ASTM 301, 304, 304L, 321, 316L. See Paragraph 94.

Moreover, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the two compositions, i.e., one of aluminum or aluminum alloy and one of austenitic stainless steel or ferritic stainless steel, in a clad material to be used as a positive electrode current collector in a lithium secondary battery. It is prima facie obvious to combine two compositions, each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. In re Kerkhoven, 205 USPQ 1069, 1072. It is also the position of the examiner that the probability of having a clad material comprising one of aluminum or aluminum alloy and one of austenitic stainless steel or ferritic stainless steel based on the teaching of Sakamoto et al. does not constitute as "picking and choosing" because the groups for useful current collector material are relatively small.

With respect to claim 2, Sakamoto et al. teach the aluminum alloy including an aluminum-manganese based alloy. See Column 5, Lines 37-65.

With respect to claim 6, Sakamoto et al. teach the positive electrode active material comprising cobalt acid lithium (cobalt lithium oxide) as well as acetylene black, polyvinyl difluoride and N-methyl-pyrrolidone. See Column 8, Lines 23-34.

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Allowable Subject Matter

4. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 3 would be allowable because the prior art does not disclose or suggest the formation of nickel plating layer on the clad material.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Dah-Wei D. Yuan
September 22, 2003

